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26 May 1998

Mr. James E. Ross
California Regional Water Quality Control Board
Los Angeles Region
101 Centre Plaza Drive
Monterey Park, CA 91754

Subject: Revision 1 toTechnical Work Plan
Installation of Temporary Groundwater Monitoring Wells
Boeing Realty Corporation C-6 Facility
Los Angeles, California
K/J 984006.00

Dear Mr. Ross:

Kennedy/Jenks Consultants is pleased to submit Revision 1 to the Technical Work Plan for the installation of temporary groundwater monitoring wells on behalf of the Boeing Realty Corporation. The original Work Plan (dated 20 April 1998) was for the installation of six temporary groundwater monitoring wells, two within Building No. 1 and four within Building No. 2, at the Boeing Realty Corporation's C-6 facility located in Los Angeles, California. The only change to the original Work Plan is now there are nine, not six, temporary groundwater monitoring wells planned, three within Building No. 1, four within Building No. 2, and two outside the southeast portion of Building No. 2. The three new locations are shown on revised Figure 1. All work to be performed will be in accordance with the tasks described in the original work plan.

If you have any questions, please call me at (714) 261-1577.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

Charles (Rus) Purcell, R.G.
Manager of Geosciences

Enclosure
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cc: S. Mario Stavale, Boeing Realty Corporation
Michael Young, Ph.D., Integrated Environmental Services, Inc.

REVISION 1 TO TECHNICAL WORK PLAN
INSTALLATION OF TEMPORARY
GROUNDWATER MONITORING WELLS

BOEING REALTY CORPORATION
C-6 FACILITY
LOS ANGELES, CALIFORNIA

20 April 1998
K/J 984006.00

This Revision 1 to the Technical Work Plan is submitted to the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) on behalf of the Boeing Realty Corporation (BRC). The following Scope of Work provides a program to install and sample nine temporary groundwater monitoring wells located in Parcel C of the Boeing C-6 Facility at 19503 South Normandie Avenue, Los Angeles, California.

SCOPE OF WORK

Task 1 - Procurement of Well Permits

Kennedy/Jenks will apply for a groundwater monitoring well construction/destruction permit from Los Angeles County for the installation and abandonment of temporary groundwater monitoring wells. This includes filling out and filing the appropriate application and paying the applicable fees.

Task 2 - Health and Safety Plan

In accordance with the federal Occupational Safety and Health Act (OSHA), a site-specific Health and Safety Plan will be prepared prior to implementing the proposed work. The Plan will comply with OSHA standards for potentially-hazardous field investigations (29 CFR 1910.120). This plan will establish general health and safety protocols to be used by Kennedy/Jenks personnel during boring and sampling activities to reduce the possibility of injury and exposure to potentially hazardous materials.

Task 3 - Records Review

Because of the large number of unknown pipelines previously encountered during demolition activities in Parcel A of the C-6 Facility, and to minimize the potential for encountering additional unknown utilities and pipelines during drilling, Kennedy/Jenks will perform a detailed review of available facility drawings and plans.

Task 4 - Geophysical Screening

After clearing the site with Underground Service Alert (USA) and completing the records review, the applicable temporary groundwater monitoring well locations will be geophysically screened to further reduce the potential for encountering unknown, buried structures and subsurface utility lines. The geophysical screening will be conducted by a licensed subcontractor and will be performed in the field shortly after USA's identification of utility lines.

Task 5 - Installation, Development and Sampling of Temporary Groundwater Monitoring Wells

Well Installation and Soil Sampling

Nine temporary groundwater monitoring wells will be drilled into the first water bearing zone at approximately 65 feet below ground surface (bgs) to investigate areas with unknown groundwater conditions (Kennedy/Jenks Consultants Standard Operating Guideline (SOG) -11) (Figure 1). Three of the temporary groundwater monitoring wells will be located inside Building No. 1 and four will be located inside building No.2, requiring the boreholes to be drilled with a limited access drilling rig (LAR) to a depth of 85 feet bgs based on the most recent groundwater levels at the site. Subsurface soils will be logged by the field geologist who will either be a California-registered geologist or under the direct supervision of a California-registered geologist. Kennedy/Jenks will monitor soils with a photoionization detector (PID) as they are being drilled and produce a geologic log based on soil samples and auger cuttings (SOG-21). The soils will be classified using the Unified Soils Classification System (USCS) and recorded on Kennedy/Jenks standard soil boring logs. Soil cuttings will be stockpiled onsite and segregated by boring number. One stockpile soil sample will be collected and analyzed for the same suite of chemicals for which the groundwater is being tested.

Following completion of borehole drilling, temporary 2-inch-diameter groundwater monitoring wells will be installed in the boreholes. The 2-inch wells will consist of 20 feet of schedule 40 well screen (15 feet extending below groundwater and 5 feet above) and 65 feet of 2-inch diameter, schedule 40 blank casing. The casing will be suspended in the borehole so the bottom of the screened interval is approximately 5 feet above the total depth of the well (i.e., 80 feet bgs or 15 feet below the water surface).

Sand pack will be added around the well casing during withdrawal of the auger flights from the borehole. The well pack and screen size are estimated to be No. 212 sand and 0.01 slot, respectively, based on the existing wells at the facility and previous soil parameters collected at the site. The well pack will extend up into the auger flights during extraction to prevent borehole caving. The sand pack will extend to approximately 2 feet above the top of the well screen. After first achieving this design, the well will be surged to determine if the well pack will settle. This procedure will continue until the sand pack remains approximately 2 feet above the screened interval.

A 2-foot to 5-foot-thick hydrated bentonite sanitary seal will be placed above the sand pack. The amount of potable water used to hydrate the seal will be recorded and taken into consideration during well development. The remainder of the well will be left open to the surface because of the temporary nature of the wells.

The temporary well casings will be cut off above ground surface about 1 foot and a locking cap will be placed on top of the casing. Surface protection for the well stickup will be used during

development and testing of the temporary wells. This method is being used because of the temporary nature of the wells.

Well Development

Development of the nine temporary groundwater monitoring wells will begin no sooner than 48 hours following well installation. A minimum of three wetted well casings of water will be pumped from each well. In addition, a minimum of three times the volume of fluid injected into the well during installation will also be extracted during well development.

Field measurements of pH, temperature, specific conductance and turbidity will be obtained at regular intervals throughout well development until the parameters stabilize. Stabilization is anticipated to be reached when the following occur in two consecutive measurements:

- pH units are within o.5 units
- Temperature is within 0.5 degrees Celsius
- Specific conductance is within 10 %
- Turbidity is 50 NTU or less.

Development equipment will be steam-cleaned prior to insertion into each well. Development and decontamination water will be contained in U.S. Department of Transportation (DOT) approved 55-gallon drums, appropriately labeled and retained on site pending analytical results for subsequent treatment and/or disposal.

Elevation Surveying

The nine temporary groundwater monitoring wells will be surveyed for vertical and horizontal control by a California-licensed surveyor. As with the existing well network, elevations will be surveyed to an accuracy of 0.01 foot and reported relative to mean sea level. Vertical control will be established for a reference mark on the casing stickup and for ground surface at each well location. These measurements will allow for determinations of groundwater elevations to provide additional data for the facility-wide groundwater monitoring network.

Groundwater Sampling and Analysis

Groundwater samples will be collected from the temporary groundwater monitoring wells by pumping no sooner than seven days following completion of well development. Groundwater sampling will follow standard sampling procedures, and samples will be transported to a certified analytical laboratory under accepted chain-of-custody protocol (SOG-12). The following suite of laboratory analyses will be performed on the samples collected from the nine temporary groundwater monitoring wells:

- Volatile organic compounds (VOCs) by EPA Method 8260
- Title 22 metals
- Hexavalent chromium using EPA Method 6010 (if Total Chrome > 0.1 mg/l)
- TPH by EPA Method 8015 for gasoline and diesel
- Pesticides by EPA Method 8080
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270.

Groundwater levels will be measured to the nearest one-hundredth of a foot using an electronic water level meter prior to purging and sampling the wells (SOG-24). PID measurements will be made following the removal of the well cap and recorded on the Daily Field Measurement Record. Field data will be collected and recorded on a standard groundwater monitoring form.

Each well will be purged by extracting a minimum of three wetted well casing volumes of standing water with a pump. Purged water will be periodically monitored for temperature, pH, specific conductance, and turbidity. Purging will be completed when five well volumes have been removed, or when two consecutive measurements of specific conductance, pH, turbidity, and temperature give values within the following ranges:

- Specific conductance: ±10 umhos/cm for 0-800 range (+ 50 at 800-1000)
- pH: ± 0.1pH number
- Temperature: ± 0.5 degrees C
- Turbidity: < 50 NTU.

After these parameters have stabilized, groundwater samples will be collected from the pump discharge in appropriate containers. Field data will be collected and recorded on a standard groundwater purge and sample form. Samples will be stored on blue ice in a cooler and transported to a state-certified laboratory for analysis under proper chain-of-custody. Chain-of-custody forms will be maintained throughout sample collection and transport

Equipment used for well purging and sampling will be cleaned between the sampling of each well with an Alconox solution and then rinsed with tap water and deionized or distilled water to reduce the potential for cross-contamination (SOG-2). Well purge water and water used to decontaminate equipment will be deposited in DOT 55-gallon drums, properly labeled and stored on site. The drums will be properly disposed following receipt of laboratory results (SOG-20B).

Groundwater analytical results will be reported in units of milligrams per liter (mg/L) or micrograms per liter (µg/L) on RWQCB Laboratory Report Forms 10A/10B or their equivalent.

Quality Assurance

Equipment rinsate blank samples are a check for cross-contamination during sample collection. An equipment blank will be collected when sampling equipment is cleaned and reused in the field. Distilled water will be used to fill or rinse the sampling equipment after the equipment has been cleaned, and then collected in the sample containers. One equipment rinsate blank sample will be collected. Equipment rinsate blanks will be analyzed for all analytical parameters.

One travel blank will be prepared in the laboratory for each sampling round. The travel blank will be prepared in a clean environment and kept in the cooler used to ship samples. The travel blank provides a check for cross-contamination during transport, and will be analyzed for VOCs by EPA Method 8260.

One duplicate groundwater sample will be collected during the sampling round. Sample duplicates are a check for sampling and analytical precision. The duplicate will be analyzed for all analytical parameters included in the monitoring program. The duplicate will be collected, numbered, packaged, and sealed in the same manner as the other samples. Duplicates will be assigned separate sample numbers and submitted blind to the laboratory.

Groundwater samples will be labeled in the following format:

TMW-06-W032098

where:

TMW-06 indicates the temporary groundwater monitoring well number
W indicates the type of sample where:
W = standard water sample
S = standard soil sample
R = equipment rinsate sample
B = travel blank sample
32098 = date the sample was collected

For example, TMW-06-W032098 is a sample that was collected from temporary groundwater monitoring well TMW-06, and is a standard water sample collected on 20 March 1998.

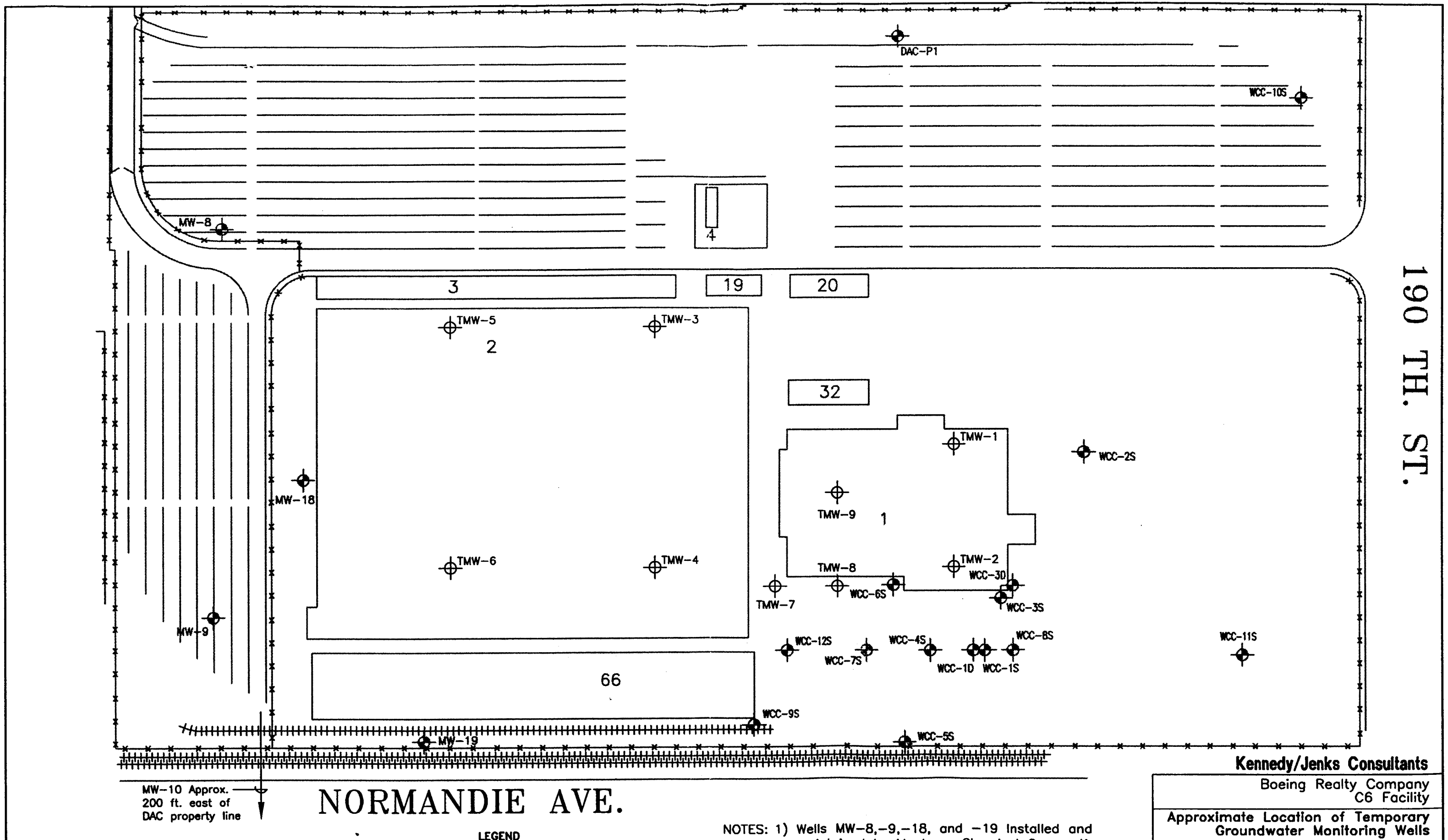
Task 6 - Abandonment of Temporary Groundwater Monitoring Wells

Two additional rounds of water table measurements will be completed prior to abandonment of the temporary wells. The nine temporary groundwater monitoring wells will be abandoned

following completion of sampling activities (SOG-31). The top 5 feet to 10 feet of 2-inch PVC casing and screen will be removed from the well and the well will be pressure grouted through the screened interval. The casing and annular space will also be grouted to within 6 inches of the ground surface and the ground surface will be restored to its original condition. Abandonment residuals will be collected in DOT 55-gallon drums and properly disposed following completion.

Task 7 - Report of Temporary Groundwater Monitoring Well Data

Kennedy/Jenks will prepare a report that includes field methods and activities and provides the groundwater analytical results. The report will also include maps showing testing locations and tables summarizing the analytical data. Soil boring logs, laboratory analytical reports, and chain-of-custody forms will be appended to the report.



LEGEND

WCC-1S Observation Well Location, Designation

TMW-9 Temporary Groundwater Monitoring Well Location

NOTES: 1) Wells MW-8,-9,-18, and -19 Installed and maintained by Montrose Chemical Corporation.

Kennedy/Jenks Consultants

Boeing Realty Company
C6 Facility

Approximate Location of Temporary Groundwater Monitoring Wells

April 1998
K/J 984006.00

Figure 1
(Revision 1)

BOE-C6-0134547

STATE OF CALIFORNIA—ENVIRONMENTAL PROTECTION AGENCY PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
101 CENTRE PLAZA DRIVE
MONTEREY PARK, CA 91754-2156
(213) 266-7500
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May 20, 1998

Mr. Chris Stoker
Integrated Environmental Services, Inc.
3990 Westerly Place, Suite 210
Newport Beach, CA 92660

TECHNICAL WORKPLAN, INSTALLATION OF TEMPORARY GROUNDWATER MONITORING WELLS - BOEING C-6 FACILITY, LOS ANGELES, CALIFORNIA (FILE NO. 100.315)

We have received and reviewed your Technical Workplan, Installation of Temporary Groundwater Monitoring Wells - Boeing C-6 Facility, Los Angeles, California, dated April 20, 1998. Our comments are as follows:

1) Include a contingency plan to collect and analyze soil samples if visible contamination, odors or PID readings indicate that contamination is present. Samples should be analyzed for the same suite of chemicals for which the groundwater is being tested.

2) Collect and analyze a soil sample from the capillary fringe in each boring. Samples should be analyzed for the same suite of chemicals for which the groundwater is being tested.

3) The workplan indicates that the annulus above the bentonite sanitary seal will be left open. The annulus must be filled should visible contamination, odors or PID readings indicate that soil contamination is present.

Should you have any questions regarding the above, please contact Hugh Marley at (213) 266-7669.

J.E. ROSS, Unit Chief
Site Cleanup Unit

cc: Ms. Karen Baker, DTSC, Long Beach
Ms. Debbie Oudiz, Office of Scientific Affairs
Mr. Mario Stavale, Boeing Realty Corporation
Mr. Jeff Dhont, Federal EPA

Lc'd 5/26/98